

Linnæus, dating from the tenth edition of the 'Systema,' should clearly replace the more familiar name *campestris* for the Pampas Deer.

15. *Pontoporia blainvillei*, Gray.

Skull picked up on sea-coast.

16. *Dasypus villosus*, Desm.

♂. 2074.

17. *Didelphis paraguayensis*, Oken.

♂. 2060, 2065; ♀. 2055, 2059, 2061.

18. *Lutreolina* (g. n.) *crassicaudata*, Desm.

*Didelphis* or *Metachirus crassicaudata* auct.

♂. 2093.

I take this opportunity to give a special generic name to the Thick-tailed Opossum, whose many peculiarities, external and cranial, amply entitle it to that distinction. Its characteristics are fully described in the 'Catalogue of Marsupials.'

XXXIV.—Remarks on Prof. L. von Méhely's recent Contribution to the Knowledge of the Lizards allied to *Lacerta muralis* \*. By G. A. BOULENGER, F.R.S.

THE first part of Prof. von Méhely's work on the Wall-Lizards, which, as the author announced a few years ago †, is intended to lead to the much desired solution of the perplexing problem of the distinction, definition, and phylogeny of the species of this interesting group, has at last appeared; and I cannot refrain from offering a few critical remarks on a piece of work which, valuable as it proves to be for the mass of information it contains, although somewhat disappointing with regard to the study of the variations of the skull ‡, has,

\* Ann. Mus. Hung. (Budapest) vii. 1909, p. 407 (received Jan. 1910).

† *Op. cit.* v. 1907, p. 84 and p. 469.

‡ In a previous contribution in reply to my criticisms (1907, p. 471) Prof. v. Méhely observed, as regards the specific characters of the skulls: "Freilich ist es nöthig von mancher Art ein Dutzend und mehr Schädel zu präpariren um das wahrhaftig Charakteristische herauszufinden, da die Schädelknochen in demselben Maasse variiren, wie jedes andere Organ." I was therefore under the impression that his knowledge of the specific

in my opinion, and as I expected from the author's preliminary publications, failed in its object.

I will merely allude again to our differences of opinion as to the probable derivation of the various forms dealt with. I have already expressed my views on this matter\*, and I see no reason to alter them. I adhere to the general lines first laid down by Eimer, whilst Prof. von M ehely would reverse the series, considering the reticulate platycephalous types as the more primitive, from which the striated pyramidocephalous are derived. He now even postulates a derivation of the Wall-Lizards from pristidactyle types with transparent lower eyelids, whilst I would regard the latter as representing specialization from liodactyle types with opaque eyelids. Mountain forms of these lizards he regards as relics of a former epoch, whilst I would look upon them, in most cases at least, as modifications of the forms of the plain, in the same way as *Salamandra atra* is surely derived from *S. maculosa* or some form closely related to it, and not the reverse. I am strongly of opinion that *L. bedriagae* and *L. sardoa* are more nearly related to the forms now living in Italy, Elba, Corsica, and Sardinia than to any others, and bear no close genetic relationship to *L. oxycephala* or other platycephalous forms of S.E. Europe, whilst *L. monticola* (a variety of *L. muralis* which Prof. v. M ehely regards as a species) is derived from the *L. muralis* of Spain and Portugal, its similarity to *L. horvathi* and *L. saxicola* being an example of convergence.

Reserving for a future occasion a full discussion of these questions, I will only observe at present that the phyletic considerations which have guided the author in regarding the "Schwesterformen" *L. danfordi* and *L. anatolica* as valid species have not been logically applied to *L. bedriagae* (*reticulata* of M ehely) and *L. sardoa*, which, from his own remarks, seem to stand in exactly the same relation to each other. The author, it may be noted, no longer regards *L. sardoa* as simply identical with *L. bedriagae*.

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characters of the skulls rested upon the study of a large material, and now I am greatly surprised to find that for 21 forms dealt with in this contribution he has only examined 47 skulls altogether, and of one only as many as 9; in 9 cases he has prepared only 1 skull, and in 3 he has not seen the skull at all. Only of 4 forms has he seen more than 3 skulls. This is not quite in accordance with what his previous statement led us to expect, and if it is true that, as he himself says, the cranial bones vary as much as any other organ, more skulls should have been studied.

\* Ann. & Mag. Nat. Hist. (7) xx. 1907, p. 39, and P. Z. S. 1908, p. 1063.

These are after all only matters of opinion, based on theoretical conceptions, but I must enter a protest against the manner in which the author has changed his definitions of the primary groups into which he divides the Wall-Lizards, without even alluding to the position previously taken up by him and which I showed to be untenable. Thus, in his first paper, to which I replied, he laid great stress on the shape of the skull, whether platycephalous or pyramidocephalous, for the grouping of species, and although admitting that a number of forms did not fit absolutely in his definition of the two groups, a definition which is too long for me to reproduce here, he placed in the former, as "rein platycephale Arten," *L. saxicola*, *L. caucasica*, *L. derjugini*, *L. horvathi*, *L. mosorensis*, *L. oeycephala*, and *L. hispanica*; and in the latter, as "rein pyramidocephal," *L. tiliguerta*, *L. fumana*, *L. ionica*, *L. peloponnesiaca*, *L. lilfordi*, *L. taurica*, and *L. jacksonii*. As forms not agreeing completely with the definition of either, as taking a "Mittelstellung," *L. anatolica*, *L. danfordi*, *L. græca*, *L. reticulata* (*bedriagæ*), *L. levis*, *L. muralis*, *L. praticola*, *L. vivipara*, and *L. boettgeri*. I then expressed the opinion that such an arrangement was most arbitrary, pointing out that the figures of two extreme types of skulls, which were selected to accompany Prof. v. M  hely's paper, conveyed a false impression of the real state of things in this genus, and observing that I could easily lay out a series that would to such an extent bridge over the differences as to show of how little practical value they are for the definition of species. I think all who will compare the two figures given by Prof. v. M  hely in his first contribution with the series depicted in the paper with which I am now dealing will admit that my objections are fully borne out. I wish particularly to request a comparison of figs. 1 and 3 on pl. iii. of the first paper, representing a "rein platycephal" type, with figs. 5 and 6 on pl. xiv. and of the figure on pl. xvii. (representing three skulls of the same species) of the latest paper, in view of the criticism I offered as to the division into platycephalous and pyramidocephalous forms. But now all is changed. The definition of the Arch  olacert  , which barbarous name replaces to some extent that of the platycephalous group, contains nothing more than a vague and inaccurate allusion to the shape of the skull; the large size of the nasal apertures, and other cranial characters, with the exception of the supra-ocular fontanelle, which were formerly regarded as diagnostic of the groups, are now used merely to define so-called species. It will also be noticed that one of the species (*L. hispanica*) formerly included among the "rein platycephal" no longer

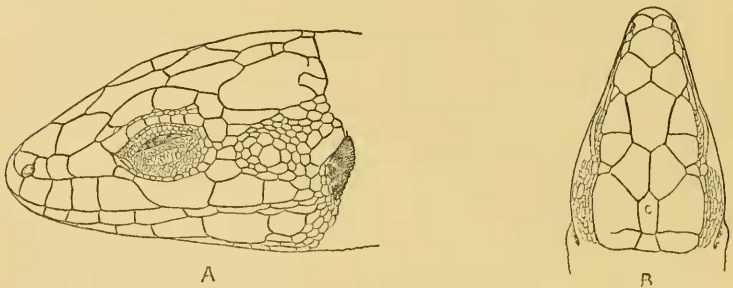
appears among them, and is intended, I infer, to be dealt with under the Neolacertæ, which corresponds on the whole to the pyramidocephalous forms of Méhely's first paper. But not a word occurs to explain this extraordinary contradiction.

I will now give a translation of the new definition of the group Archæolacertæ, appending a number to each character in order to facilitate criticism:—

“Oxy-platycephalous forms (1), in which the outer border of the parietal shield is more or less emarginate by a wedge-shaped first supratemporal (2). Between the supraoculars and the supraciliary mostly a complete row of granules (3). The suture between the first and second supraciliaries vertical to the supraciliary arch (4). Caudal scales forming alternately long and short verticils (5). A distinct sensory pit on the hind border of each upper caudal scale (6). Lamina supraciliaris (supraocular osteo-dermal plates) usually with a membranous fontanelle (7). Livery mostly reticulate (8).”

What are these characters worth? Not one of them can be regarded as distinctive of the group Archæolacertæ as opposed to the Neolacertæ, as I will show.

Fig. 1.



Heads of *Lacerta muralis*, var. *campestris* (A), from Sansego Island, and *L. muralis*, f. *typica* (B), from Vöslau, near Vienna.

(1) By “oxy-platycephalous” is evidently meant a pointed snout and a very flat head. Now *L. horvathi* (Archæolacerta) has a broader blunter snout than an average typical *L. muralis* (Neolacerta) and the heads of *L. danfordi* and *derjugini* (Archæolacertæ) are less flattened than those of many Neolacertæ (*L. muralis* typ., *L. tiliguerta*, *L. hispanica*, &c.).

(2) I append a figure of a head of a *L. muralis*, var. *campestris*, from Sansego Island, Istria, to show that some Neolacertæ may agree with the definition of the Archæolacertæ,

whilst I would refer the reader to fig. 1, pl. xvi. of Prof. v. M $\acute{e}$ hely's paper to show that exceptions to this character occur among the Arch $\acute{a}$ olacert $\acute{a}$ . Besides, I have already pointed out elsewhere very frequent exceptions in both groups. In my paper in the 'Transactions of the Zoological Society' (xvii. 1905) I have carefully recorded them on account of Prof. v. M $\acute{e}$ hely's statement (Ann. Mus. Hung. ii. 1904, p. 368, footnote) "Ich habe z. B. viele Hunderte von sehr verschiedenen Fundorten herstammende Exemplare der *Lacerta muralis*, *L. vivipara* und *L. taurica* untersucht und niemals ein Exemplar angetroffen, bei dem das erste Postoculare [upper postocular] nicht an das Parietale angestossen h $\acute{a}$ tte." Is it not very remarkable that when I examine scores instead of hundreds of the typical form I come across such exceptional specimens? Recently on looking over 135 typical *L. muralis* from Spain, I found 23 such exceptions, or nearly 18 per cent. A specimen here figured (fig. 1 B) is from near Vienna. In a recent reply to my criticisms (Ann. Mus. Hung. v. 1907, p. 488) Prof. v. M $\acute{e}$ hely maintains his statement, and thinks he can explain the exceptions I have pointed out by suggesting that I have been deceived in my examination by an occasional division of the last supraocular. How can anyone believe that in such a case I would have reckoned a specimen as not falling into Prof. v. M $\acute{e}$ hely's definition? I will let the above figures, traced from photographs, speak for themselves. Besides, it is an incontrovertible fact that *L. bedriagae* (Arch $\acute{a}$ olacerta) and *L. tiliguerta* (Neolacerta) are absolutely identical as concerns the character in question.

(3) Here again I need only refer the reader to Prof. v. M $\acute{e}$ hely's own description and figures (pl. xxi.), and to my memoir of 1905, where I have mentioned innumerable exceptions to the character which I take to be implicitly held by the author as diagnostic of the Neolacert $\acute{a}$  in opposition to the Arch $\acute{a}$ olacert $\acute{a}$ .

(4) I have before me examples of Pal $\acute{a}$ olacert $\acute{a}$  (*L. dezfordi*, *bedriagae*, and *mosorensis*, for example) in which the suture in question is oblique, whilst, on the other hand, I find many *L. muralis*, typ., which answer to the definition of the Arch $\acute{a}$ olacert $\acute{a}$ . How much the direction of this suture varies may be seen from the author's figures on pl. xxi.

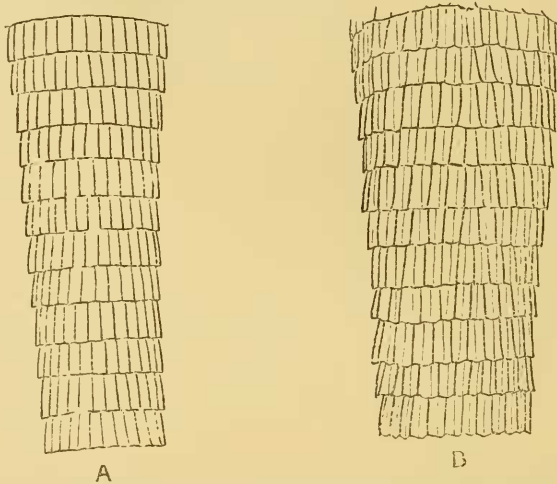
(5) The annexed figures of the scaling of the tail (in anterior third), traced from photographs, of an Arch $\acute{a}$ olacerta (*L. graeca*) and a Neolacerta (*L. muralis*, typ.) suffice to put aside a character to which undue importance is attached, although I could bring forward many other instances. I notice that in his descriptions of the species of Pal $\acute{a}$ olacert $\acute{a}$

Prof. v. M $\acute{e}$ hely sometimes refers to the character as being "wenig auffallend." But, then, why does he use it in the diagnosis of the group, without a word as to there being exceptions?

(6) The sensory pits vary much in distinctness on the head and tail according to individuals in the typical *L. muralis*. On the other hand I cannot find a trace of these pits on the tail of some individuals of *L. bedriagæ* and *L. sardoa* (Archæolacertæ), where, according to the author, they are only "mehr oder weniger auffallend," an expression which surely applies also to some of his Neolacertæ.

(7) See Prof. v. M $\acute{e}$ hely's own descriptions and figures as regards the Archæolacertæ. I have already mentioned finding the fontanelle in adult *L. muralis*, var. *tiliguerta*, *lilfordi*, and *fumana* (Neolacertæ).

Fig. 2.



Scaling of upper surface of tail (in anterior third) of *Lacerta danfordi*, var. *græca* (A), from Lada, Taygetos Mts., and *L. muralis*, f. *typica* (B), from Bosnia.

(8) *L. muralis*, var. *nigriventris*, always pertains, even when very young, to the reticulate type, which is also met with in the var. *brueggemanni*, *bocagei*, &c., all Neolacertæ, whilst *L. horvathi* (Archæolacerta) agrees very closely in markings with the striped individuals of *L. muralis*, typ., as Prof. v. M $\acute{e}$ hely knows perfectly well. I have just had photographs taken of a *L. m.*, var. *tiliguerta*, and a *L. m.*, var. *bedriagæ*, which are absolutely identical in markings.

I can quite understand a systematist using characters which suffer occasional exceptions, provided they are conscientiously mentioned; but when the exceptions are so frequent and striking as they prove to be in the case of the two groups opposed to each other, the course followed by Prof. v. Méhely seems to me unjustifiable.

More astonishing still, if it may be, is the choice of characters by which the key to the species is constructed. This key I have translated literally, only following a different typographic arrangement in order to render it more easily readable:—

I. Two superposed postnasal ("nasofrenal") shields.

A. A series of small shields on the posterior border of the anal.

Rostral separated from the nostril by a small subnasal; ventral plates in 8 longitudinal series . . . . . *L. anatolica*, Werner.

Rostral entering the nostril; ventral plates in 6 longitudinal series . . . . . *L. danfordi*, Gthr.

B. No small shields on the posterior border of the anal.

1. Occipital shield considerably larger than the interparietal.

*L. lævis*, Gray.

2. Occipital smaller than the interparietal.

a. Rostral not in contact with the frontonasal ("internasal"); first supraocular usually in contact with the frontal.

No masseteric shield; each of the scales of the two middle rows of subcaudals somewhat broader than the neighbouring ones . . . . . *L. græca*, Bedr.

Usually a distinct masseteric shield; each of the scales of the two middle rows of subcaudals nearly twice as broad as the neighbouring ones . . . . . *L. oxycephala*, D. & B.

b. Rostral always in contact with the frontonasal; first supraocular not in contact with the frontal.

*L. mosorensis*, Kolomb.

II. A single postnasal.

A. Rostral always forming a rather long suture with the frontonasal.

Collar with straight edge; upper caudal scales truncate behind; femoral pores forming a complete series . . . . . *L. horvathi*, Méhely.

Collar distinctly dentate; upper caudal scales pointed behind; femoral pores forming a short series, vanishing outwards . . . . . *L. derjugini*, Nik.

B. Rostral not touching the frontonasal or forming at most a short suture with it.

1. Usually no masseteric shield; outer border of parietal shield usually but slightly notched by the first supratemporal; upper caudal scales keelless . . . . . *L. reticulata*, Bedr.

2. Usually a distinct masseteric shield; outer border of parietal shield usually strongly notched by the first supratemporal; upper caudal scales distinctly keeled longitudinally.

a. Collar distinctly dentate; upper caudal scales pointed behind.

Dorsal scales smooth .....	<i>L. caucasica</i> , Méhely.
Dorsal scales distinctly keeled .....	<i>L. boettgeri</i> , Méhely.

b. Collar with straight edge; upper caudal scales truncate behind .....

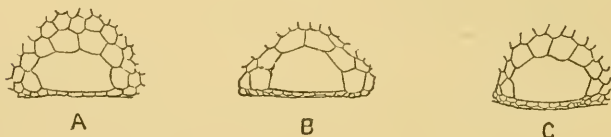
*L. saxicola*, Eversm.

In division I (two superposed postnasals) we find *L. mosorensis*, in which there is frequently a single postnasal. Out of 12 specimens in the British Museum, received from Prof. Kolombatovic, the describer of the species, 5 have a single postnasal.

In division II (a single postnasal) I find, as I have already mentioned, and as Prof. v. Méhely knows, two postnasals in about 20 per cent. of the *L. reticulata (bedriaga)* examined.

I A is opposed to I B on a character of small importance which I find as well developed in most specimens of *L. græca* as in *L. danfordi*, whilst indications of it are to be seen occasionally in other lizards of the *L. muralis* group. I here figure (traced from photographs) the anal region in one of the types of *L. danfordi*, in a *L. græca* from Taygetos (received from Mr. Lorenz Müller), and in a *L. muralis*, var. *serpa*, from the Faraglioni.

Fig. 3.



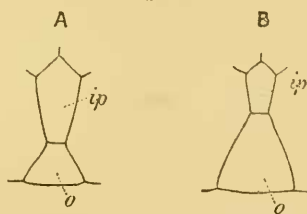
Preanal region of *Lacerta danfordi*, type (A), *L. danfordi*, var. *græca* (B), from Kambos, and *L. muralis*, var. *serpa* (C), from the Faraglioni near Capri.

*L. anatolica* is separated from *L. danfordi* as having the rostral separated from the nostril by a small shield and 8 rows of ventrals. The first character has no importance whatever, as shown by *Latastia coppadocica* (although formerly appealed to by v. Méhely as one of the generic characters of *Apathya*) and other species, in which it is admitted by the author himself to be inconstant, whilst the second is disposed of by the fact that two of the types of *L. danfordi* in the British Museum have 8 rows of ventrals, not 6.



I B 1, with *L. laevis*, is opposed to I B 2 on account of a supposed difference in the relative size of the occipital and interparietal shields. The author admits that he has not had sufficient material to properly deal with *L. laevis*, but I may assure him that the occipital may, in that species, be smaller than the interparietal, supporting my statement by a figure of the shields in a female from Jerusalem; it is, however, amazing to find that it is not so in *L. graeca*, as the larger size of the occipital was one of the characters appealed to by Bedriaga to justify the separation of that species from *L. danfordi*. The size of the occipital varies much in these as well as in most species of *Lacerta*, but it so happens that *L. graeca* has frequently the occipital considerably larger than the interparietal, as the author himself admits further on in the description of that species ("Occipitale breiter und meist auch länger als das Interparietale"), and as shown by a figure of its condition in one of the type specimens.

Fig. 4.



Interparietal (*ip*) and occipital (*o*) shields of *L. laevis* (A) from Jerusalem, and of one of the types of *L. graeca* (B).

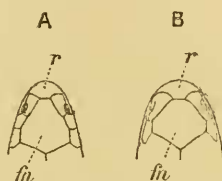
II A cannot be separated from II B, since the suture between the rostral and the frontonasal may be quite as long in *L. sardoa*, which Méhely unites with *L. reticulata* (*bedriagæ*), as in *L. horvathi*. Further on the upper caudal scales of *L. reticulata* are given as keelless, whereas the author knows perfectly well that they are often feebly keeled, and he seems to forget all about *L. sardoa*, in which they are usually very distinctly keeled (see Peracca, Boll. Mus. Tor. xx. 1905, no. 319, figure of male).

I might go on with such criticism, but enough has been said to show that the key is utterly unreliable. Of course it is only by taking such liberties with facts that the distinction of many untenable species receives an appearance of foundation in the eyes of those who are not in a position to form an independent judgment. I have always fancied keys were

intended to facilitate the identification of specimens, not merely to support an author's conception of species.

Were it not that I do not wish to lengthen this review with matters of nomenclature, I would have some complaints to make about the use of the *nomen nudum* of *L. boettgeri* to

Fig. 5.



End of snout of *L. sardoa* (A) and *L. horvathi* (B).  
r, rostral; fn, frontonasal.

replace my properly described and figured *L. chlorogaster*, and about the incorrect manner in which some of my previous contributions have been referred to in the synonymy preceding the descriptions of the species and varieties. But I will reserve these points for a more detailed publication on these lizards, on which I am now engaged.

### XXXV.—*Descriptions and Records of Bees.*—XXVI.

By T. D. A. COCKERELL, University of Colorado.

#### *Melissodes atrifera*, sp. n.

♂.—Length about  $12\frac{1}{2}$  mm.; antennæ about 10.

Black, the *clypeus* and *labrum* with *tégument* wholly black; mandibles with no yellow spot; flagellum clear ferruginous beneath; third antennal joint about twice as long as second; pubescence pale ochreous, nearly white on face and lower part of cheeks, black on posterior half of mesothorax and scutellum except margin; hair on inner side of middle and hind basitarsi orange; tegulæ dark reddish, with black hair. Wings dusky, stigma and nervures fusco-ferruginous. Mesothorax shining, strongly punctured; hind margins of second and following abdominal segments broadly whitish hyaline, of first narrowly so; upper surface of abdomen with much coarse, suberect, dark fuscous hair, but with also imperfect